Amendments to the Claims

This listing of claims is marked to show changes to the immediate prior version of claims pending in this application, and will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-36. (Canceled)

Claim 37. (Currently amended) A transdermal antigenic composition, comprising:

(a) a transdermal carrier comprising a penetrant suspended or dispersed in an aqueous solvent,

the penetrant being in the form of a minute fluid droplet surrounded by a coating of one or more layers of at least 2 substances that differ by at least a factor of 10 in solubility,

the substances forming homoaggregates of one substance and/or heteroaggregates of the at least 2 substances, the average diameter of homoaggregates of the more soluble substance, or the average diameter of the heteroaggregates of the at least 2 substances, being smaller than the average diameter of homoaggregates of the less soluble substance, and/or

the more soluble substance solubilizing the droplet and the content of the more soluble substance being up to 99 mol-% of the concentration required to solubilize the droplet or corresponding to up to 99 mol-% of the saturating concentration in an unsolubilized droplet, whichever is higher, and/or

wherein the elastic deformation energy of the droplet surrounded by the coating is at least 5 times lower than the elastic deformation energy of red blood cells or of a phospholipid bilayer having fluid aliphatic chains;

(b) a compound which specifically has or induces cytokine or anti-cytokine activity;

(c) an antigen or mixture of different antigens and/or an allergen or mixture of different allergens; and

(d) a chemical irritant, an extract or a compound from a pathogen, a fragment or a derivative of the [[a]] chemical irritant, or compound isolated from a pathogen.

Claim 38. (Previously presented) The antigenic composition of claim 37, wherein the at least two substances are two ionization states or salt forms of the same substance.

Claim 39. (Canceled).

Claim 40. (Previously presented) The antigenic composition according to claim 37, wherein the less soluble substance with the tendency to aggregate is a polar lipid, and the more soluble substance is a surfactant.

Claim 41. (Previously presented) The antigenic composition according to claim 37, wherein the average diameter of the penetrant is between 30 nm and 500 nm.

Claim 42. (Previously presented) The antigenic composition according to claim 37, wherein the total weight of droplets in the antigenic composition for use on human or animal skin is 0.01 weight-% (w-%) to 40 w-% of total mass of the antigenic composition.

Claim 43. (Previously presented) The antigenic composition according to claim 37, wherein the total antigen concentration is between 0.001 and 40 w-% of the total penetrant mass.

Claim 44. (Canceled)

Claim 45. (Previously presented) The antigenic composition according to claim 37, wherein the compound is IL-4, IL-3, IL-2, TGF, IL-6, IL-7, TNF, IL-1a and/or IL-1b, IL-12, IFN-g, TNF-b, IL-5, IL-10, a type I interferon, IFN-alpha, or IFN-b.

Claim 46. (Withdrawn – Previously presented) The antigenic composition according to claim 37, wherein the compound is an anti-cytokine antibody or an active fragment, a derivative, or an analog thereof.

Claim 47. (Previously presented) The antigenic composition according to claim 37, wherein the antigen is derived from a pathogen.

Claim 48. (Previously presented) The antigenic composition according to claim 47 wherein said pathogen is selected from the group consisting of extracellular bacteria, gram-negative bacteria, gram-positive bacteria, bacteria and viruses, which survive and replicate within host cells, fungi prospering inside host cells, parasites, the causative agent for cholera, Haemophilus species, pathogens triggering paratyphoid, pathogens triggering plague, pathogens triggering rabies, *Clostridium tetani*, pathogens triggering rubella, and pathogens that cause various neoplasiae, auto-immune diseases or are related to other pathological states of the animal or human body which do not necessarily result from pathogen infections.

Claim 49. (Withdrawn – Previously presented) The antigenic composition according to claim 37, wherein the allergen is of xenogenic or endogenic origin; derived from a microorganism, an animal or a plant; a man made and/or irritating inorganic substance; or a part or component of the human body which was incorrectly processed by or exposed to the body immune system.

Claim 50. (Previously presented) The antigenic composition according to claim 37, wherein the concentration of the compound used is up to 1000 times higher than a concentration optimum established in corresponding tests performed by injecting the antigenic compositions or performing the tests in vitro.

Claim 51. (Withdrawn – Previously presented) The antigenic composition according to claim 37, wherein the pathogen extract or compound is a lipopolysaccharide, cord-factor, muramyl dipeptide, or

an immunologically active part of a membrane of a pathogen; an extract of a pathogen; or bacterial or viral nucleic acids.

Claim 52. (Withdrawn – Previously presented) The antigenic composition according to claim 51, wherein the pathogen extract or compound is a lipopolysaccharide, and wherein the lipopolysaccharide is lipid A or a derivative, modification, or analog thereof.

Claim 53. (Withdrawn – Previously presented) The antigenic composition according to claim 51, wherein the pathogen extract or compound is a lipopolysaccharide, and wherein the lipopolysaccharide is monophosphoryl lipid A.

Claim 54. (Withdrawn – Previously presented) The antigenic composition according to claim 51, wherein the pathogen extract or compound is a lipopolysaccharide, and wherein the lipopolysaccharide is a fatty derivative of saccharose.

Claim 55. (Previously presented) The antigenic composition according to claim 37, wherein the concentration of the compound from a pathogen is between 10 times lower and up to 1000 times higher than the concentration used with the corresponding injected antigenic compositions employing similar antigen.

Claim 56. (Withdrawn – Previously presented) The antigenic composition according to claim 37, further comprising an irritant selected from the classes of allergenic metal ions, acids, bases, irritating fluids, (fatty-) alcohols, (fatty-) amines, (fatty-) ethers, (fatty-) sulphonates, or –phosphates or derivatives or combinations thereof.

Claim 57. (Withdrawn – Previously presented) The antigenic composition according to claim 37, further comprising an irritant that is a solvent or amphiphile or a derivative or combination thereof.

Claim 58. (Previously presented) The antigenic composition according to claim 37, further comprising an irritant selected from the group consisting of surfactants and derivatives and combinations thereof.

Claim 59. (Previously presented) The antigenic composition according to claim 58 wherein the surfactant enhances skin permeation.

Claim 60. (Previously presented) The antigenic composition according to claim 37, wherein the concentration of the irritant is below by at least a factor of 2 to a factor of 10 or more a concentration which is unacceptable owing to local irritation in tests on the same or a comparable subject.

Claim 61. (Withdrawn – Previously presented) The antigenic composition according to claim 37, wherein the allergen is an inhalation allergen, food allergen, drug allergen, contact allergen, injection allergen, invasion allergen, or depot allergen.

Claim 62. (Previously presented) The antigenic composition according to claim 37, wherein the applied dose of the antigen differs by the factor of 0.1 to 100 from the dose which would have to be used with an injection.

Claim 63. (Previously presented) The antigenic composition according to claim 37, wherein the applied dose of an antigen is less than 10 times higher than the dose which would have to be used with an injection.

Claim 64. (Previously presented) The antigenic composition according to claim 37, wherein the applied penetrant dose is between 0.1 mg/cm^2 and 15 mg/cm^2.

Claim 65. (Previously presented) The antigenic composition according to claim 37, wherein the antigen is a pure or purified antigen.

Claim 66. (Previously presented) A kit, comprising at least one dose of the antigenic composition according to claim 37 in packaged form.

Claim 67. (Canceled)

Claim 68. (Withdrawn – Previously presented) A method for generating a protective immune response in a mammal by administering to the mammal an antigenic composition according to claim 37.

Claim 69. (Withdrawn – Previously presented) The method according to claim 68, wherein a suspension of antigen-free penetrants is loaded with the antigen to be associated therewith about 30 minutes before administration of the antigenic composition.

Claim 70. (Withdrawn – Previously presented) The method according to claim 68, wherein the antigenic composition is applied on skin after pre-treating the skin by an immunoadjuvant manipulation, the manipulation comprising rubbing, pressing, heating, exposing to an electrical or mechanical field, or injecting a non-immunogenic formulation in the skin, wherein such treatment releases immunoadjuvant compounds from the skin or other peripheral immunoactive tissues or reduces the concentration of antagonists to the desired vaccination and/or the duration of action of said antagonists.

Claim 71. (Withdrawn) The method according to claim 68 wherein immunogen is applied in a non-occlusive patch.

Claim 72. (Withdrawn – Previously presented) The method of claim 68 wherein at least one dose of antigenic composition is administered.

Claim 73. (Withdrawn – Previously presented) The method according to claim 72, wherein the antigenic composition is administered as a booster vaccination.

Claim 74. (Withdrawn) The method according to claim 73, wherein a primary immunization is done invasively and wherein the booster immunization is done non- invasively.

Claim 75. (Withdrawn – Previously presented) The method according to claim 68, wherein the antigenic composition is applied between 2 and 10 times when a non- allergenic antigen is used.

Claim 76. (Withdrawn – Previously presented) The method according to claim 75, wherein the time interval between subsequent administrations is between 2 weeks and 5 years.

Claim 77. (Withdrawn – Currently amended) A method for inducing a protective or tolerogenic immune response comprising administering an antigenic composition, the antigenic composition comprising:

(a) a transdermal carrier comprising a penetrant suspended or dispersed in an aqueous solvent,

the penetrant being in the form of a minute fluid droplet surrounded by a coating of one or more layers of at least 2 substances that differ by at least a factor of 10 in solubility,

the substances forming homoaggregates of one substance and/or heteroaggregates of the at least 2 substances, the average diameter of homoaggregates of the more soluble substance, or the average diameter of the heteroaggregates of the at least 2 substances, being smaller than the average diameter of homoaggregates of the less soluble substance, and/or

the more soluble substance solubilizing the droplet and the content of the more soluble substance being up to 99 mol-% of the concentration required to solubilize the droplet or corresponding to up to 99 mol-% of the saturating concentration in an unsolubilized droplet, whichever is higher, and/or

wherein the elastic deformation energy of the droplet surrounded by the coating is at least 5 times lower than the elastic deformation energy of red blood cells or of a phospholipid bilayer having fluid aliphatic chains;

(b) a compound which specifically has or induces cytokine or anti-cytokine activity;

(c) an antigen or mixture of different antigens and/or an allergen or mixture of different allergens; and

(d) a chemical irritant, an extract or a compound from a pathogen, a fragment or a derivative of the [[~~a~~]] chemical irritant, or compound isolated from a pathogen.

Claim 78. (Withdrawn – Currently amended) The method of claim 77, wherein (d) ~~the antigenic composition~~ is an extract or a compound from a pathogen or a fragment or a derivative of the pathogen compound or extract.

Claim 79. (Withdrawn – Currently amended) The method of claim 77, wherein (d) is a ~~the antigenic composition further comprises a low molecular weight~~ chemical irritant or a fragment or a derivative of the chemical irritant.

Claim 80. (Currently amended) A transdermal antigenic composition, comprising:

(a) a transdermal carrier comprising a penetrant suspended or dispersed in an aqueous solvent,

the penetrant being in the form of a minute fluid droplet surrounded by a coating of one or more layers of at least 2 substances that differ by at least a factor of 10 in solubility,

the substances forming homoaggregates of one substance and/or heteroaggregates of the at least 2 substances, the average diameter of homoaggregates of the more soluble substance, or the average diameter of the heteroaggregates of the at least 2 substances, being smaller than the average diameter of homoaggregates of the less soluble substance,

and/or

the more soluble substance solubilizing the droplet and the content of the more soluble substance being up to 99 mol-% of the concentration required to solubilize the droplet or corresponding to up to 99 mol-% of the saturating concentration in an unsolubilized droplet, whichever is higher, and/or

wherein the elastic deformation energy of the droplet surrounded by the coating is at least 5 times lower than the elastic deformation energy of red blood cells or of a phospholipid bilayer having fluid aliphatic chains;

(b) a compound which specifically has or induces cytokine or anti-cytokine activity; and

(c) an antigen or mixture of different antigens and/or an allergen or mixture of different allergens;

wherein said (b) and (c) are associated with the penetrant, and wherein said composition is to provide a protective or tolerogenic immune response.

Claim 81. (Previously presented) The composition of claim 80, wherein (c) comprises a part of a pathogen or an allergen in its natural form or after fragmentation or derivatisation.

Claim 82. (Canceled)

Claim 83. (Previously presented) The composition of claim [[~~82~~]] 80, wherein to provide said protective immune response is to provide complete protection against a normally lethal challenge.

Claim 84. (Previously presented) The composition of claim 37, wherein said composition is to provide a protective or tolerogenic immune response.

Claim 85. (New) The composition of claim 37, wherein said composition is to provide a protective immune response.

Claim 86. (New) The composition of claim 80, wherein said composition is to provide a protective immune response.

Claim 87. (New) The composition of claim 80, wherein the antigen and/or allergen is at least one of the group consisting of simple carbohydrate, complex carbohydrate, polysaccharide, deoxyribonucleic acid, extracellular bacteria, pus-forming cocci, Staphylococcus cocci, Streptococcus cocci, gram-negative bacteria, Meningococcus bacteria, Gonococcus bacteria, Neisseria bacteria, E. coli, Salmonella, Shigella, Pseudomonas, Diptheria, Bordetella Pertussis, gram-positive bacteria, Bacillus pestis, BCG, anaerobic bacteria, Clostridium bacteria, Clostridium tetani, Clostridium perfringens, Clostridium novyi, Clostridium septicum, all viruses which survive and replicate within host cells, mycobacteria, M. tuberculosis, Listeria

monocytogenes, retro-and adenoviruses, hepatitis virus, immunodeficiency virus, herpes virus, small-pox virus, chicken-pox virus, influenza virus, measles virus, mumps virus, polio virus, cytomegalovirus, rhinovirus, fungi that prosper inside host cells, parasites, animal parasites, protozoa, helminths, ectoparasites, ticks, mites, Brucella species, Brucella melitensis, Brucella abortus, Brucella suis, Brucella canis, Brucella neotomae, Brucella ovis, the causative agent for cholera, Vibrio cholera, Haemophilus species, Haemophilus actinomycetemcomitans, Haemophilus pleuropneumoniae, pathogens triggering paratyphoid, pathogens triggering plague, pathogens triggering rabies, pathogens triggering tetanus, pathogens triggering rubella, tetanus toxoid, cholera toxoid, eukaryotic cells or their parts that cause neoplasiae, auto-immune diseases and other pathological states of the animal or human body, and parts of pathogens having porin-like properties.

Claim 88. (New) The composition of claim 80, wherein the antigen and/or allergen is at least one of the group consisting of material of endogenous origin, material of plant origin, microbe, mite, pollen, animal hair, animal skin debris, inhalation allergen, spores, feather, natural and synthetic textiles, wheat, (house) dust; drug allergens ; contact allergens ; injection, invasion and depot allergens, gastrointestine-resident worms, echinococci, trichines, parts of implantation material, allergenic (metal) ions, LiCl, $HgCl_2$ molibdenum, derived from a microorganism, derived from endogenous material, and derived from a plant.